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Competitive Forces and Profit Persistence in Banking

Like virtually all industries, banking is subject to regulations that encourage competition. For example, banks cannot merge if doing so would tend to create monopolies in banking markets. However, unlike most other industries, banks are subject to a wide variety of regulations designed to protect the stability of the financial system and meet other objectives. As an unintended side effect, these regulations may dampen the forces of competition. For example, chartering requirements and branching restrictions may impede entry by new competitors and expansion by existing banks. Entry by nonbank financial or nonfinancial firms is limited due to legal restrictions on the activities in which banking firms may engage.

If the opposing influences of bank regulation have the net effect of weakening competitive forces, bank profits should reflect that. When bank profits differ from the "normal" competitive level, adjustment back to that level should take longer in banking than in other industries—that is, profits should be more persistent in banking. In this *Letter,* financial and stock price data are used to estimate the adjustment speed in the banking industry and, hence, to examine the degree to which abnormal bank profits tend to persist in the face of market forces. The results indicate that above-normal profits in banking are fairly long-lived compared to other industries.

Creation and destruction of above-normal profits

In theory, firms in competitive markets should earn normal long-run profits that provide investors with returns identical to those on comparable investments. A bank in a competitive market can earn above-normal profits for some period only by having a product that is perceived as superior in some dimension—successful product differentiation—or by producing the same products as competitors but at lower cost—successful cost leadership. Meaningful cost and product differentials might arise through luck; for example, a bank might happen to be located in a region that experiences a relative decline in labor costs. Or product and cost differences might be created intentionally, through new products and services whose value exceeds their cost to the bank, or innovative ideas for cutting costs without unduly sacrificing current levels of service and product quality. Either good fortune or good ideas can create a "competitive advantage" for a bank, leading to an increase in profits without a corresponding increase in risk.

But if competitive forces are allowed to operate, such an advantage cannot last indefinitely. Competitors will move into a newly profitable market segment—either a product market or a geographic market—as soon as they can, or will imitate successful new practices. Once competitors catch up, the competitive advantage is erased and the bank once again earns only normal profits. Persistent above-normal profits in the face of these market-based adjustments depends in large part on structural characteristics of the markets involved and on the conduct of the players in those markets. The speed of adjustment is an indicator of how competitive the banking industry is; information on bank stock prices can be used to measure that adjustment speed.

The effect of profitability on stock prices

Bank share prices generally reflect expected future profits, with heavier weight given to near-term profitability, but with significant weight also given to long-run profits. In financial terms, the price of a stock reflects the present discounted value of expected future profits. Thus for banks with publicly traded stock, higher profits from a competitive advantage translate into higher share prices. As a very broad generalization, if a bank always earns normal profits, its stock price is equal to the accounting book value per share. Higher profits tend to push the market value above book value.

The relationship between future profits and a bank's current stock price implies that not only

the current level, but also the longevity of any above-normal profits is likely to have an important influence on bank stock prices. The longer the above-normal profits are expected to persist, the higher the current market value of the stock will be relative to book value. The relationship between bank stock values and the degree of profit persistence can yield insight into stock market investors' implicit beliefs about the rate of adjustment of profits.

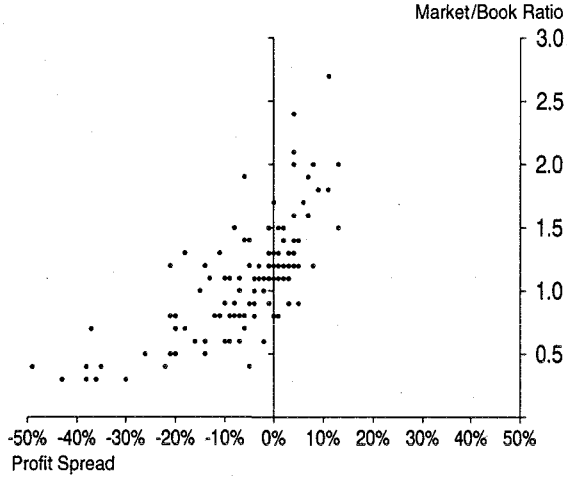
An initial view of the relationship

A necessary first step in analyzing profit persistence is to define what is meant by "profits" and what is meant by "normal" profits. Profits can be measured by the return on equity (ROE), which is net income divided by the book value of the bank's stockholder equity. A normal level for the profit rate could be defined using any of several approaches (the results are relatively insensitive to the method used to establish the normal level). A widely used model from finance, the Capital Asset Pricing Model (CAPM), was adopted for this analysis. The CAPM uses stock returns to provide an estimate of the normal rate of return, taking into account risk and the general level of interest rates. The difference between a bank's actual ROE and the estimated normal return from the CAPM is a measure of the extent to which profits differ from what should be expected given the level of risk taken by the bank. This abnormal profit differential can be termed the "profit spread."

A simple examination of the relationship between stock values and past profit spreads can reveal the existence of bank profit persistence. Expectations of positive profit spreads from competitive advantages should increase bank share prices. Negative spreads from below-normal profits—arising from bad luck or bad decisions—should reduce stock prices. The more persistent the spreads are, the more the stock prices will be raised or depressed relative to book value. But only expected *future* profits have this effect; if *past* profit spreads are systematically related to current market-to-book ratios, the market must believe that bank profits are persistent, with above-normal profits in the recent past signaling the likely continuation of those spreads into the future.

Chart 1 illustrates the relationship between past profit spreads and bank market-to-book ratios, for a sample of 126 banks and bank holding companies (all referred to here as "banks" for convenience). Each point represents one bank. The vertical axis shows the market-to-book ratio as of the end of June 1991. The horizontal axis measures the profit spread for each bank, with profits measured over the year ending in June of 1991. Banks in the right half of Chart 1 earned more than the normal return, while those on the left earned less than they should have for the level of risk taken.

Chart 1: Effect of Profitability on Stock Value



The chart indicates that, as a general rule, firms with higher recent spreads have higher current stock values. Moreover, those with above-normal past profits tend to have market stock prices above book value, while the opposite is true for those with low past profits. The positive relationship suggests that the market takes high profits from the immediate past as an indication of high future profits, and low past profits as an indication of low future profits—that is, profits are persistent. However, more information is needed to determine how great that persistence is.

Quantifying the effects

To look more closely at profit persistence in banking, and to compare it to other industries, a theoretical model was developed describing the linkage between current and future profitability and the market-to-book ratio. The model takes into account the level of interest rates, growth rates of banks, and differences in risk across banks. The unique aspect of the model is that it also incorporates market expectations of profit spread decay over time. The theoretical model was then translated into a statistical model and applied to the same sample of banks used in Chart 1, to examine the empirical relationship between stock prices and profitability, and ultimately to decipher stock market investors' implicit beliefs about the rate of profit decay.

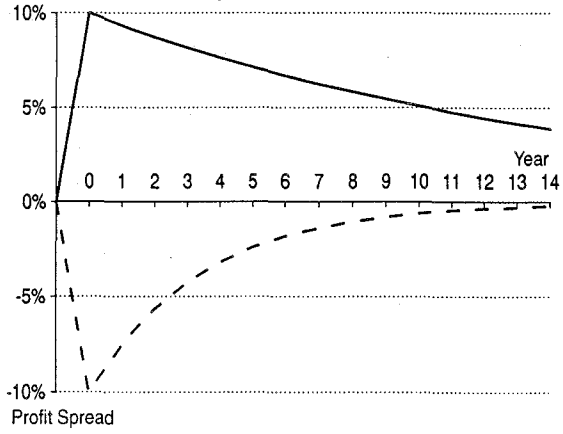
One significant problem was ignored above to simplify the exposition: Reported accounting profits may not accurately reflect banks' true profitability. A variety of well-known peculiarities of accounting practice might lead to accounting profits being imprecise and biased as measures of true economic profitability. Investors in the market probably use accounting information, but also filter the reported numbers to determine a "true" (higher or lower) level of profits. These investor opinions are then reflected in the market price of bank shares. The statistical analysis took this complication into account. (Details are available from the author.)

The statistical results showed that advantages in banking are fairly long lasting. The adjustment speed based on the 1991 sample data is 4.4 percent per year for banks with above-normal profits; that is, 4.4 percent of any positive spread between actual profits and the normal level should disappear each year, all else equal. Comparable evidence for other industries is scarce, but suggests that profit spreads disappear more quickly for other kinds of firms: Other studies have found rates ranging from 30 percent to 70 percent for firms outside of banking.

Interestingly, while above-normal profits last a long time, below-normal profits vanish much more quickly; the estimated speed of adjustment for negative profit spreads was 23.6 percent per year. (Statistically, the adjustment speeds for high and low profit banks are significantly different, and both rates are significantly greater than zero and less than one.) It seems reasonable that negative spreads should be less persistent, since the banks that have the best information about the existence and sources of the losses—the afflicted banks themselves—are also those in the best position to act on that information. In contrast, positive spreads are reduced only when *other* banks notice a competitor with a spread-creating advantage, analyze its sources, and act to copy or eliminate the advantage; in many cases, acquiring the needed information may be expensive and difficult for the other banks.

Chart 2 illustrates the difference in adjustment between positive and negative spreads. The chart shows the time path of the profit spreads implied by the model for a hypothetical bank that begins with normal profits, then develops an advantage (the upper, solid line) or disadvantage (the lower, broken line) producing an initial spread of 10 percentage points either way. For both positive and negative differences, the profit spread adjusts back toward zero (that is, a position of normal profitability) over time, but much more rapidly from below than from above.

Chart 2: Profit Adjustment Paths



Conclusion

An examination of the relationship between bank profitability and bank share prices shows that once a bank's economic profits rise above or fall below a normal level, the profit spread persists for some time. However, profits do eventually return to normal. The fact that high profits are not infinitely persistent is itself an important point. Despite the fact that banking is a heavily regulated industry, market forces operate to drive high (and low) profits back toward normal levels.

Persistent profits have ambiguous implications for policy. In a sense, above-normal profits mean that bank customers are paying too much. They would be better off obtaining banking products or services at prices closer to cost, with banks earning only normal rates of profit. However, the prospect of persistent high profits may encourage innovation that benefits bank customers, in much the same way that patent protection does in other industries. Moreover, some of the slow adjustment of profits probably results from regulation; the damage from weakened competitive forces must be weighed against the benefits, such as safety and soundness, that banking regulations achieve.

Mark E. Levonian
Research Officer

Research Department
Federal Reserve
Bank of
San Francisco

P.O. Box 7702
San Francisco, CA 94120

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